Summary of EPA Wellbore Integrity Concerns and Status as of February 2012

In **June 2011** EPA proposed to WOGCC for the wellbore integrity work group's consideration an approach to evaluating wellbore integrity that uses a comprehensive set of tools to evaluate the 168 gas wells. The approach EPA proposed was to:

- Do a comprehensive records review (WOGCC, BLM) to ensure that all critical documents (e.g. Cement Bond Logs) that existed for a given well were evaluated to assess whether surface casing and cement were adequate and appropriate
- For wells that did have sufficient information to suggest a casing/cement problem, utilize a combination of tools to better define whether a problem exists (including bradenhead monitoring, running temperature logs, etc)
- For wells that lacked sufficient information to determine casing/cement adequacy, run a CBL

EPA believed this proposal offered a more comprehensive approach that would be more effective at determining whether fluid movement up wellbores could occur than solely relying on bradenhead testing. However, this proposal was never sent by WOGCC to the work group, as far as EPA staff is aware, nor was it responded to by WOGCC.

In **July 2011** Encana sent a document describing the testing protocol they were already implementing with WOGCC's concurrence, which relied solely on bradenhead testing to identify problem wells.

At the **August 2011** wellbore integrity work group meeting, EPA distributed written comments on Encana's proposal to solely utilize bradenhead testing to identify problem wells. The comments weren't responded to at the meeting, nor were they acknowledged in the work group meeting notes.

The concern is that bradenhead testing implemented by Encana will only detect problems involving pressures in the annulus high enough to fracture the formation at the surface casing shoe, which is a worst-case scenario. It would not detect fluid movement from one zone to another at lower pressures, which EPA staff believes to be a more common situation.

The current path appears to be that any well that does not exhibit bradenhead pressure will be deemed to be non-problematic without any further testing. This would mean that wells with fluid movement potential at pressures less than the worst-case scenario will not be further evaluated or considered for

remediation.